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# *INDIANA* **Epidemiology** *NEWSLETTER*

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Epidemiology Resource Center  
2 North Meridian Street, 3-D  
Indianapolis, IN 46204  
317/233-7416

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## **Public Fears of Anthrax Produce Hundreds of Lab Specimens**

Leah Ingraham, PhD  
ISDH Epidemiology Resource Center

Tom Cronau, MA  
ISDH Laboratories

### **Introduction**

By January 2002, more than 1200 anthrax-related specimens had been submitted for analysis by the Indiana State Department of Health (ISDH) Laboratory staff. All specimens tested negative for *Bacillus anthracis*. Suspicious powders were found in offices, warehouses, and homes. They also lurked on buses and airplanes and in vehicles. In addition, the public took to heart the directives about “suspicious mail” and dutifully notified authorities about items with no return address, handwritten address, discrepancies between postmark and return address, as well as the presence of stains or bulkiness. First responders were kept busy securing specimens and transporting them to Indianapolis from 80 of Indiana’s 92 counties.

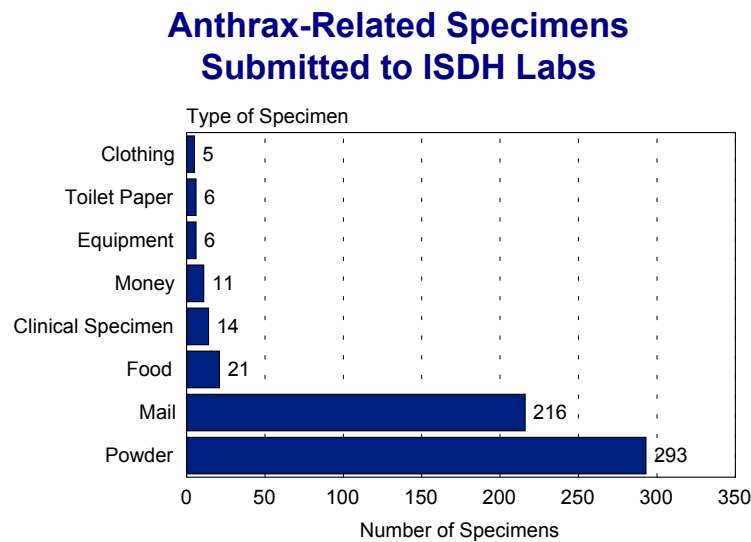
### **Overview of the First 555 Specimens**

An analysis of the first 555 specimens submitted revealed some interesting characteristics. The two types of responders most frequently called upon to secure and/or transport specimens were HazMat (hazardous materials) Teams (122 of the 555 specimens) and Law Enforcement (179). Powders and mailed items were the two categories most frequently submitted, but other items came under scrutiny as well (Figure 1). Of the 216 mailed items submitted, only 55 really met the category of “suspicious mail,” but an additional 13 did contain explicit threats with or without enclosed powder. Fourteen submissions were of clinical origin, nine of which were nasal swabs, taken primarily in response to patients' desires to be “screened” for anthrax.

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**Figure 1.**



Among the environmental specimens were 193 powders, which ranged in color from black through brown to white and in consistency from large particle through granular to powder or dust. For 131 specimens submitted due to claims of or fears of powder being present, no powder could be recovered once the specimen reached the lab. The level of anxiety about powders was evidenced by the fact that in some cases, even when someone at the site of collection informed others that the powder was harmless (e.g. soap powder had been spilled in the supply closet), there was still a need to relieve concerns by having the specimen tested.

Large, intact items were also submitted such as computer equipment and entire cases of canned food. Some bags arrived not only with the suspicious powder but also with the whiskbroom and dustpan used in the collection. Often the gloves used during the collection were bagged up along with the powder. Sometimes suspicious letters had been thrown away, and then second thoughts had occurred. Such specimens often arrived in plastic bags that contained the entire contents of the trashcan. The eleven money specimens received ranged from single coins with a suspicious appearance to actual bags of cash with a powdery substance on the moneybag.

**Communication and Educational Exchange with First Responders**

To help official responders recognize what types of specimens were appropriate for laboratory analysis, ISDH staff created fact sheets and flow charts for law enforcement, fire departments, emergency management personnel, local health departments, and health care providers. Mailings to physicians and hospital emergency departments as well as postings on the Indiana State Medical Association web site explained that nasal swabs were indicated for epidemiological investigation rather than for clinical decision-making. After the first few weeks, no inappropriate nasal swabs were received.

Information sent to first responders provided guidance for a.) on-scene threat assessment, b.) the type and size of an item that could be accommodated for analysis, and c.) safe sampling procedures. These directions were also included in the October and November 2001 issues of the *Indiana Epidemiology Newsletter*. At present the majority of specimens being submitted fall within these guidelines. One great advantage of the barrage of anthrax samples has been the creation of a true partnership between ISDH staff and Indiana first responders, based on not only on enhanced communication but also on greater appreciation for the roles and expertise of each of the professions.

The relationships between ISDH and official responders, as well as the Environmental Protection Agency and the US Postal Services Inspector, have also been strengthened by the cooperation and collaboration developed during the environmental surveys of government facilities. Especially important were the efforts to determine if the postal equipment repair facility in Indianapolis was contaminated with *B. anthracis* spores. One positive environmental sample had been identified by a private laboratory and later confirmed by the Centers for Disease Control and Prevention (CDC). In order to determine if any other areas of the same building were contaminated, ISDH lab staff analyzed more than 150 specimens, none of which were positive for *B. anthracis*, either pre- or post-decontamination procedures.

## **Lessons Learned**

The ISDH lab staff and the agency's Bioterrorism Working Group have reviewed the impact of anthrax-related fears on the lab. Fortunately, the ISDH labs had already achieved Level B\* status for anthrax testing before October when the first specimens were submitted. Thus, the capacity to examine submitted items in the BSL-3 hood (negative airflow protective hood) and the subsequent cultivation and characterization of isolates was in place. What had not been anticipated was the tremendous effect on the public in response to the anthrax cases on the East Coast. As specimens began to pour in, procedures for intake, storage, record keeping, and reporting on large numbers of items were still in draft or tentative form. Consequently, there was a lot of "learning on the job". Toward the end of December when the number of specimens submitted per day began to drop, there was time to update and refine these procedures.

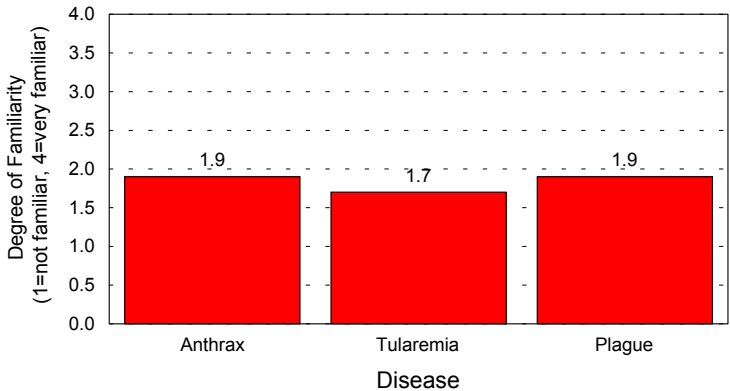
One area of confusion has been determining the "investigating authority." Typically, a specimen is collected at the site because an individual has requested assistance from either law enforcement or fire department or other official responder. Once the specimen is collected, the first responder may be the person who actually transports the specimen to the lab or the specimen may be transferred to another authority which may become the transporter. Alternatively, sometimes specimens were stored temporarily before submission, and an authorized courier then acted as transporter. Although a "Chain of Custody" form was maintained for every specimen, because of the possibility of a criminal investigation in the event of a threat or of a positive culture, the ISDH lab staff sometimes did not know which agency had actually assumed investigative authority. Consequently, ISDH personnel are working on developing forms that clearly identify to whom the report should be sent once lab analysis is completed.

## **ISDH Relationships with Indiana Clinical Laboratories and Local Health Departments**

The ISDH is in the process of strengthening relationships with Indiana clinical laboratories, all of which potentially could serve as Level A\* capable laboratories. During the summer of 2001, ISDH staff issued out a survey to 150 labs to determine their familiarity with protocols for *B. anthracis*, *Francisella tularensis*, and *Yersinia pestis*, three of the bioagents given the highest CDC priority for possible use by terrorists. Familiarity judged on a scale of one to four (1 = not familiar; 4 = very familiar), showed an average value of less than two for the 86 responding labs (Figure 2). Therefore, when the anthrax inhalation cases occurred on the East Coast, ISDH lab staff immediately faxed to these Indiana labs the CDC protocol for initial work with clinical specimens possibly containing *B. anthracis*. ISDH staff wished to ensure that lab personnel throughout the state were aware of the proper steps. Since then, the staff have created an e-mail listing of several of the clinical labs so that information can be sent electronically, a less cumbersome and more timely mechanism for distribution of important information.

Figure 2.

**Familiarity of Indiana Clinical Laboratory Personnel with Bioterrorism Agents Anthrax**



In addition, the ISDH has created an e-mail address for clinical or local health department labs, ([labques@labs.isdh.state.in.us](mailto:labques@labs.isdh.state.in.us)) for submission of questions to state lab staff, not only on bioterrorism procedures but other types of protocols as well. This is a companion to the already established [containers@isdh.state.in.us](mailto:containers@isdh.state.in.us), the means by which appropriate containers for submission of specimens can be obtained. Staff of local health departments, whether they have their own lab or not, are encouraged to note this latter address and to use it as needed for selected environmental specimens (i.e. bacteriological, fluoride, sodium, nitrate, nitrite), and for ordering clinical specimen kits.

Recently CDC invited ISDH to become a pilot site for strengthened two-way communication between the state lab and Indiana clinical labs. This arrangement will create a mechanism for timely data collection and compilation, allowing awareness of disease outbreaks in a timely fashion.

Future Developments: ISDH lab staff have recently developed PCR (polymerase chain reaction) capability for identification of *B. anthracis*, and the lab staff expect to have PCR capability for both *F. tularensis* and *Y. pestis* available in the coming months. As each of the CDC refined protocols for bioterrorism agents becomes available, ISDH will continue to participate in the validation exercises. By the end of 2002, ISDH lab will be ready to assume Level C\* status. These activities will assure that expert laboratory capability will be available to serve Indiana citizens.

\* = Level A labs “rule-out” bioagents from clinical specimens and refer them; Level B labs receive specimens from Level A labs and from environmental surveys for “rule-in” and refer procedures; and Level C labs receive specimens from Level B labs, perform molecular assays, and serve in a reference capacity.

## Pertussis Cases in Hamilton County

Wayne Staggs, MS  
ISDH Epidemiology Resource Center



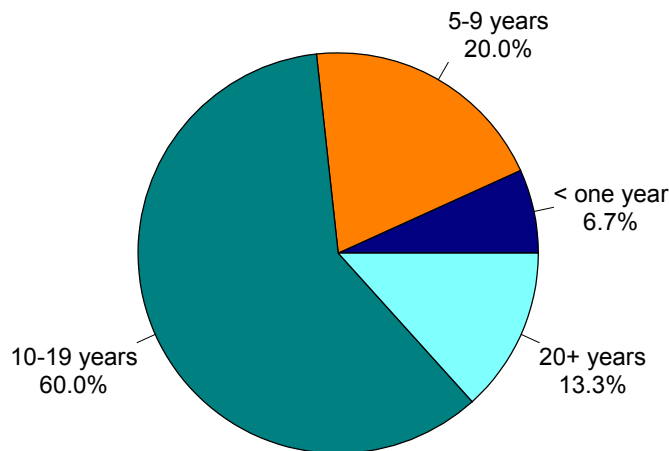
Fifteen cases of pertussis occurred in Hamilton County during the last three months of 2001 (Hamilton County reported two cases of pertussis in 2000). Pertussis (whooping cough) is an acute infectious cough illness caused by the bacterium *Bordetella pertussis*, with incidence normally peaking during the months of July-October, rather than later in the year.

The cough onset of the 15 Hamilton County cases ranged from October 15 until December 8. Cases ranged in age from 2 months to 49 years of age. Eighty percent (80%) of the cases occurred in the 10-19 age group (Figure 1). Five of the cases occurred among students in one high school, four others occurred in one junior high school, and three other cases occurred in one elementary school. In addition, one of the adults worked at the elementary school where the three cases occurred.

**Figure 1.**

### Pertussis Incidence - Hamilton County Percent of Cases by Age Group\*

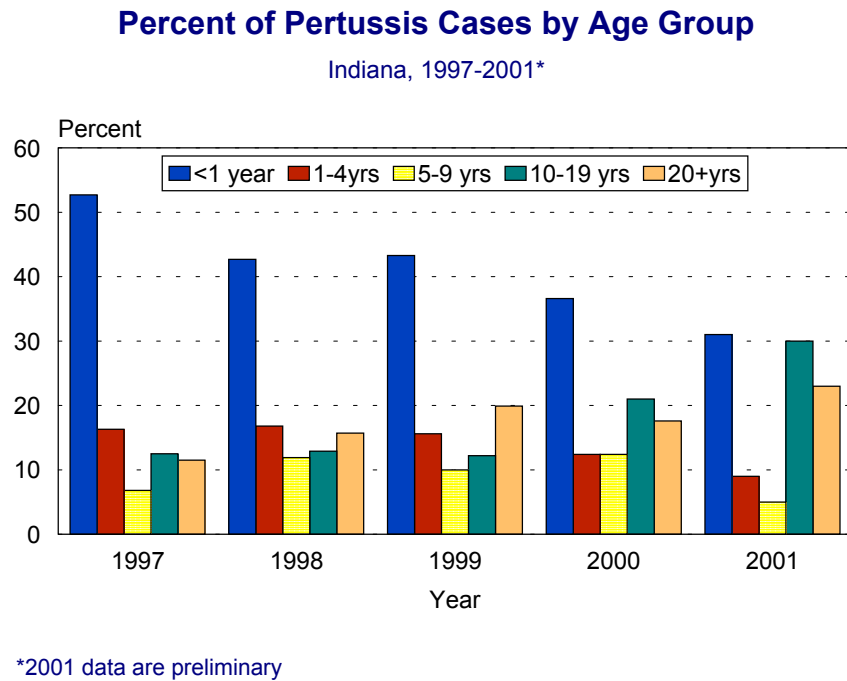
October - December, 2001



\*no cases occurred in the 1-4 year age group

Immunity to pertussis begins to wane 5-10 years following the last vaccine dose (appropriately given at 4-6 years of age) and, therefore, pertussis in adolescents and adults can occur even though they were fully vaccinated as a child. The disease may be milder in older persons, but these infected persons may transmit the disease to other susceptible persons, including unimmunized or partially immunized infants, who are at highest risk for complications. In recent years, probably due to better recognition of adolescent and adult cases on the part of providers, the percentage of cases in the 10-19 and 20+ age groups has increased (Figure 2).

**Figure 2.**



One hundred and fifty-three (153) cases of pertussis were reported in Indiana during 2000, while preliminary data for 2001 show 104 cases. Pertussis cases increased slightly in Indiana during the 1990s with an average of 112 cases being reported per year, as compared with 108 cases per year during the 1980s.

Effective measures for the control of pertussis include the following:

- Ensure that all infants and children are up-to-date on their pertussis vaccination schedule. If not, bring them up-to-date using the accelerated immunization schedule approved by the ACIP.
- Health Care Providers should consider a diagnosis of pertussis in persons of any age who have a persistent cough of 10-14 days or longer.
- Health Care Providers should report any suspected case of pertussis immediately to their local health department.
- Appropriate antibiotic therapy is recommended for all cases and household contacts of cases, irrespective of age or vaccination status.
- If possible, prior to the initiation of antibiotic therapy, appropriate laboratory specimens should be collected and submitted for analysis. Culture and DFA are the preferred methods of laboratory analysis and are available at the ISDH Special Reference Bacteriology Laboratory (call 317-233-8105 to obtain test kits or 317-233-8040 for specimen handling, shipping or interpretation of results). PCR is also acceptable if done in conjunction with culture (PCR testing for pertussis is not currently available at the ISDH Laboratory). In the absence of standardization, serological test results should not be relied on for case confirmation for the purposes of reporting.

A more detailed document entitled "Recommended Pertussis Control Measures" is available from the Communicable Control Disease Program by calling 317-233-7112.

## Rabies Vaccination Rules Modified

James Howell, DVM, MPH  
ISDH Epidemiology Resource Center

The Indiana State Board of Animal Health has modified Statute 345 IAC 1-5-1, Rabies Vaccination, to follow the vaccine label for duration of immunity. (NOTE: This rule does not supersede the existing laws of communities with more restrictive requirements.) The rule change recognizes the vaccination intervals as prescribed on the vaccine manufacturer's label (vaccine must be licensed by the US Department of Agriculture) and set forth in the *Compendium of Animal Rabies Prevention and Control*. Veterinarians may choose to use a product requiring annual or three-year revaccination requirements, based on the animal's age and other health issues. Prior to November 1, 2001, all rabies vaccinations had to be repeated annually. This change only applies to dogs and cats.



Rabies vaccination certificates must contain the name and address of the owner, the species, sex and age of the animal vaccinated, the date the animal was vaccinated, the vaccine's brand name and lot number, the date the animal must be revaccinated, the rabies tag number, and the name of the veterinarian and his/her Indiana veterinary license number. When investigating animal biting incidents, owners must provide this certificate to validate that the rabies vaccination is current.

Regardless of a cat, dog, or ferret's rabies vaccination status, biting animals must be confined and observed for 10 days after the biting incident. There is no observation time approved for other species. Bites by other species should be discussed with public health personnel to determine a course of action. A course of action is dependent on the species, circumstances of the bite, and animal rabies in the geographical area.

The *Compendium* can be reviewed at [www.in.gov/boah](http://www.in.gov/boah) under Companion Animal.

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## Public Health Emergency Response Seminar

Emily Seevers, MPH  
ISDH Epidemiology Resource Center

The Indiana State Department of Health (ISDH) presented the "Public Health Emergency Response" seminar on Friday, January 4. The program was designed for professionals from local health departments, health care fields, and emergency response. Speakers included representatives from the State Emergency Management Agency (SEMA), the Indiana Counter-Terrorism and Security Council (C-TASC), Office of the State Fire Marshal, Indiana University Medical Center, and ISDH.



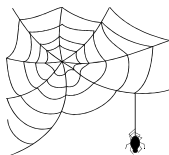
Following a videotaped welcome by Lt. Governor Joe Kernan, the seminar included information on emergency management at state and local levels, role of local health departments, biological, chemical and radiologic agents, the National Pharmaceutical Stockpile (NPS), mass prophylaxis, laboratory issues, communication, and various agencies' roles for preparedness and response. Viewers could phone or fax questions during the seminar for discussion during question and answer sessions. Funding for the seminar was provided by the Centers for Disease Control and Prevention (CDC).

The seminar was uplinked through the Indiana Higher Education Telecommunications System (IHETS) network from the Indiana University Radio-TV services in Bloomington to approximately 80 satellite sites throughout the state. The seminar was also viewed at ISDH via live videostreaming provided by IHETS. As of January 14, coordinators from 43 sites reported 256 participants viewed the seminar. Of those 256 participants, 121 (55%) identified themselves as working at a health department, 49 (22%) as working in the health care field, 17 (8%) as working as a first responder, and 34 (15%) identified themselves as working in another type of field.

Videotapes of the two morning and afternoon sessions are available for \$25 each plus a \$5 shipping and handling charge. Tapes can be ordered by calling 812-855-2987. Additional information, including the seminar presentation slides, is available on the ISDH website at <http://www.statehealth.in.gov>.

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## *Wonderful Wide Web Sites*

### **ISDH Data Reports Available**

**The ISDH Epidemiology Resource Center has the following data reports and the Indiana Epidemiology Newsletter available on the ISDH Web Page:**

<http://www.statehealth.IN.gov> (under Data and Statistics)

Indiana Cancer Incidence Report (1990, 95,96)	Indiana Mortality Report (97,98,99)
Indiana Cancer Mortality Report (1990-94, 1992-96)	Indiana Natality/Induced Termination of Pregnancy/Marriage Report (1998, 1999)
Indiana Health Behavior Risk Factors (1995-96, 97, 98,99)	Indiana Natality Report (1995, 96, 97)
	Indiana Marriage Report (1995, 96, 97)
Indiana Hospital Consumer Guide (1996)	Indiana Report of Diseases of Public Health Interest (1997, 98, 99)
Indiana Maternal & Child Health Outcomes & Performance Measures (1988-97, 1989-98, 1990-99)	

## **HIV Disease Summary**

**Information as of December 31, 2001 (based on population of 5,840,528)**

### *HIV - without AIDS to date:*

365	New cases from January 2001 thru December 2001	12-month incidence	6.25 cases/100,000
3,489	Total HIV-positive, alive & without AIDS on December 31, 2001	Point prevalence	59.74 cases/100,000

### *AIDS cases to date:*

343	New AIDS cases January 2001 thru December 2001	12-month incidence	5.87 cases/100,000
2,919	Total AIDS cases alive on December 31, 2001	Point prevalence	49.98 cases/100,000
6,449	Total AIDS cases, cumulative (alive and dead)		

## REPORTED CASES of selected notifiable diseases

Disease	Cases Reported in December MMWR Week 49-52		Cumulative Cases Reported January - December MMWR Weeks 1-52	
	2000	2001	2000	2001
Campylobacteriosis	50	36	592	472
Chlamydia	1,335	895	14,344	15,364
<i>E. coli</i> O157:H7	12	6	131	87
Hepatitis A	21	5	131	103
Hepatitis B	46	1	93	48
Invasive Drug Resistant <i>S. pneumoniae</i> (DRSP)	34	12	223	175
Gonorrhea	578	491	6,607	6,978
Legionellosis	5	1	41	25
Lyme Disease	1	1	23	24
Measles	0	0	0	4
Meningococcal, invasive	14	7	51	45
Pertussis	42	16	153	96
Rocky Mountain Spotted Fever	1	0	4	2
Salmonellosis	77	44	678	537
Shigellosis	110	10	1,591	225
Syphilis (Primary and Secondary)	20	7	351	160
Tuberculosis	14	14	145	114
Animal Rabies	0	0	14 (all bats)	15 (all bats)

**NOTE:** The number of cases reported for 2001 are preliminary. Cases with onset of illness in 2001 will continue to be reported and investigated during the first few months of 2002.

**For information on reporting of communicable diseases in Indiana, call the *ISDH Communicable Disease Division* at (317) 233-7665.**

**Indiana**  
***Epidemiology***  
**Newsletter**

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*State Health Commissioner*  
Gregory A. Wilson, MD

*Editor*  
Pam Pontones, MA, RM(AAM)

*Deputy State Health Commissioner*  
Michael Hurst

*Contributing Authors:*  
Tom Cronau, MA  
James Howell, DVM, MPH  
Leah Ingraham, PhD  
Emily Seevers, MPH  
Wayne Staggs, MS

*State Epidemiologist*  
Robert Teclaw, DVM, MPH, PhD

*Design/Layout*  
Cheryl Thomas